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Drive, Laguna Beach, CA 92651 (US). JONES, Michael, L. [US/US]; 6332 Camino Marinero, San Clemente, CA 92673 (US).

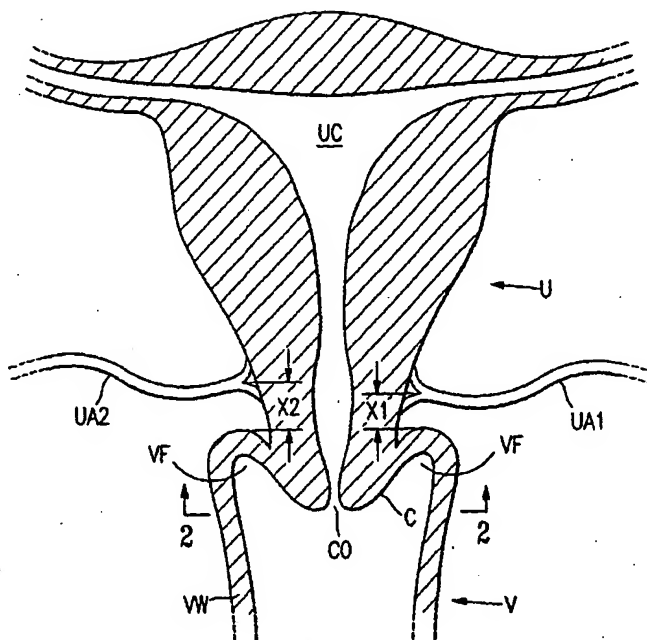
(74) Agent: LYNCH, Edward, J.; Coudert Brothers LLP, 600 Beach Street, 3rd Floor, San Francisco, CA 94109 (US).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

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[Continued on next page]

(54) Title: DEVICE FOR UTERINE COMPRESSION



(57) Abstract: A compressor (100) compressing one or both of the uterine arteries of a patient which is at least a part shaped to complement the shape of the exterior of the cervix, which allows the system to be self-positioning. One or more Doppler chips (214i, 216i) can be mounted or incorporated into the compressor (100) which permit the practitioner to better identify the uterine artery and monitor blood flow therein. The compressor (100) includes a pair of pivotally joined elements which can be moved toward and away from the cervix to compress a uterine artery.

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## INTERNATIONAL SEARCH REPORT

International application No.

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<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC(7) : A61B 8/14, 17/36 US CL : 600/461; 606/205 According to International Patent Classification (IPC) or to both national classification and IPC																				
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) U.S. : 600/407-595; 606/41, 45, 46, 151, 158, 205; 128/898  Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched NPL  Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EAST 1.3: compression, occlusion, artery, uterine, doppler																				
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>																				
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.																		
Y	US 6,066,139 A (Ryan et al.) 23 May 2000 (23.05.2000), entire document.	1-69																		
Y	US 5,979,453 A (Savage et al.) 09 November 1999 (09.11.1999), entire document.	1-69																		
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.																				
<table border="0"><tr><td colspan="2">* Special categories of cited documents:</td><td>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td></tr><tr><td>"A" document defining the general state of the art which is not considered to be of particular relevance</td><td></td><td>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td></tr><tr><td>"E" earlier application or patent published on or after the international filing date</td><td></td><td>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td></tr><tr><td>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td><td></td><td>"&amp;" document member of the same patent family</td></tr><tr><td>"O" document referring to an oral disclosure, use, exhibition or other means</td><td></td><td></td></tr><tr><td>"P" document published prior to the international filing date but later than the priority date claimed</td><td></td><td></td></tr></table>			* Special categories of cited documents:		"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	"A" document defining the general state of the art which is not considered to be of particular relevance		"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	"E" earlier application or patent published on or after the international filing date		"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)		"&" document member of the same patent family	"O" document referring to an oral disclosure, use, exhibition or other means			"P" document published prior to the international filing date but later than the priority date claimed		
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(54) MULTI-AXIAL UTERINE ARTERY IDENTIFICATION,  
CHARACTERIZATION, AND OCCLUSION PIVOTING DEVICES AND  
METHODS

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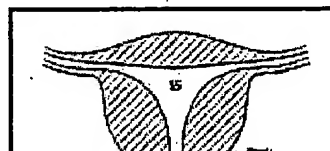
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of the uterine arteries of a patient which is at least n  
part shaped to complement the shape of the exterior of



the cervix, which allows the system to be self-positioning. One or more Doppler chips can be mounted or incorporated into the system which permit the practitioner to better identify the uterine artery and monitor blood flow therein. The system includes a pair of pivotally joined elements which can be moved toward and away from the cervix to compress a uterine artery.



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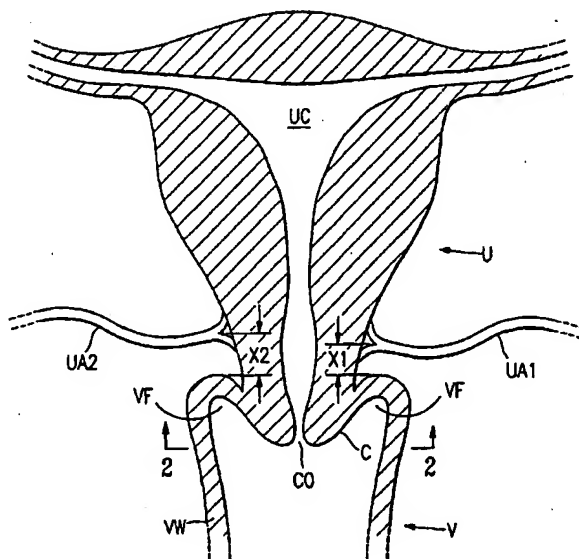
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[Continued on next page]

(54) Title: **MULTI-AXIAL UTERINE ARTERY IDENTIFICATION, CHARACTERIZATION, AND OCCLUSION PIVOTING DEVICES AND METHODS**



(57) Abstract: A system is provided for compressing one or both of the uterine arteries of a patient which is at least in part shaped to complement the shape of the exterior of the cervix, which allows the system to be self-positioning. One or more Doppler chips can be mounted or incorporated into the system which permit the practitioner to better identify the uterine artery and monitor blood flow therein. The system includes a pair of pivotally joined elements which can be moved toward and away from the cervix to compress a uterine artery.

**MULTI-AXIAL UTERINE ARTERY IDENTIFICATION,  
CHARACTERIZATION, AND OCCLUSION PIVOTING DEVICES AND  
METHODS**

[0001] This application is related and claims priority under 35 U.S.C. § 119 to U.S. provisional patent application serial number 60/279,477, filed March 28, 2001, the entire contents of which are incorporated by reference herein. This application is also related to an application filed on even date herewith entitled "Multi-axial uterine artery identification, characterization, and occlusion devices and methods", by Fred Burbank, Grieg E. Altieri, and Michael L. Jones, attorney docket number 0281-0001, the entire contents of which are incorporated by reference herein.

**BACKGROUND OF THE INVENTION**

**Field of the Invention**

[0002] The present invention relates to devices, systems, and processes useful for compressing a uterine artery, and more particularly to devices and systems capable of easily locating, compressing, and/or monitoring or characterizing the blood flow through a uterine artery.

**Brief Description of the Related Art**

[0003] It has been proposed that occlusion of the uterine arteries of a human female patient can kill myomata, i.e., fibroids, because of the relative frailty of the fibroids to anoxia or hypoxia, and the relatively high resistance of uterine tissues to anoxia or hypoxia. See Burbank, Fred, M.D., et al, Uterine Artery Occlusion by Embolization or Surgery for the Treatment of Fibroids: A Unifying Hypothesis-Transient Uterine Ischemia, The Journal of the American Association of Gynecologic Laparoscopists, November 2000, Vol. 7, No. 4 Supplement, pp. S3-S49. U.S. Patent No. 6,254,601, to Fred Burbank et al, entitled "Methods for Occlusion of the Uterine Arteries", describes numerous devices and methods useful for occluding a uterine

## WHAT IS CLAIMED IS:

1. A device useful for compressing a uterine artery of a patient comprising:
  - a handle having a proximal end and a distal end; and
  - a compressing portion mounted to the handle distal end, the compressing portion having a distal end face and a side surface.
2. A device in accordance with Claim 1, wherein the compressing portion is a first compressing portion, and further comprising a second compressing portion spaced apart from the first compressing portion; and
  - wherein the handle is connected to at least one of the two compressing portions.
3. A device in accordance with Claim 2, further comprising:
  - at least one Doppler crystal mounted in the compressing portion, the at least one Doppler crystal having a direction of view away from the compressing portion distal end face.
4. A device in accordance with Claim 2, wherein the at least one Doppler crystal is releasably mounted in the distal compressing portion.
5. A device in accordance with Claim 2, wherein the at least one Doppler crystal is integrally formed in the distal compressing portion.
6. A device in accordance with Claim 2, wherein the at least one Doppler crystal comprises a plurality of Doppler crystals mounted in the compressing portion.

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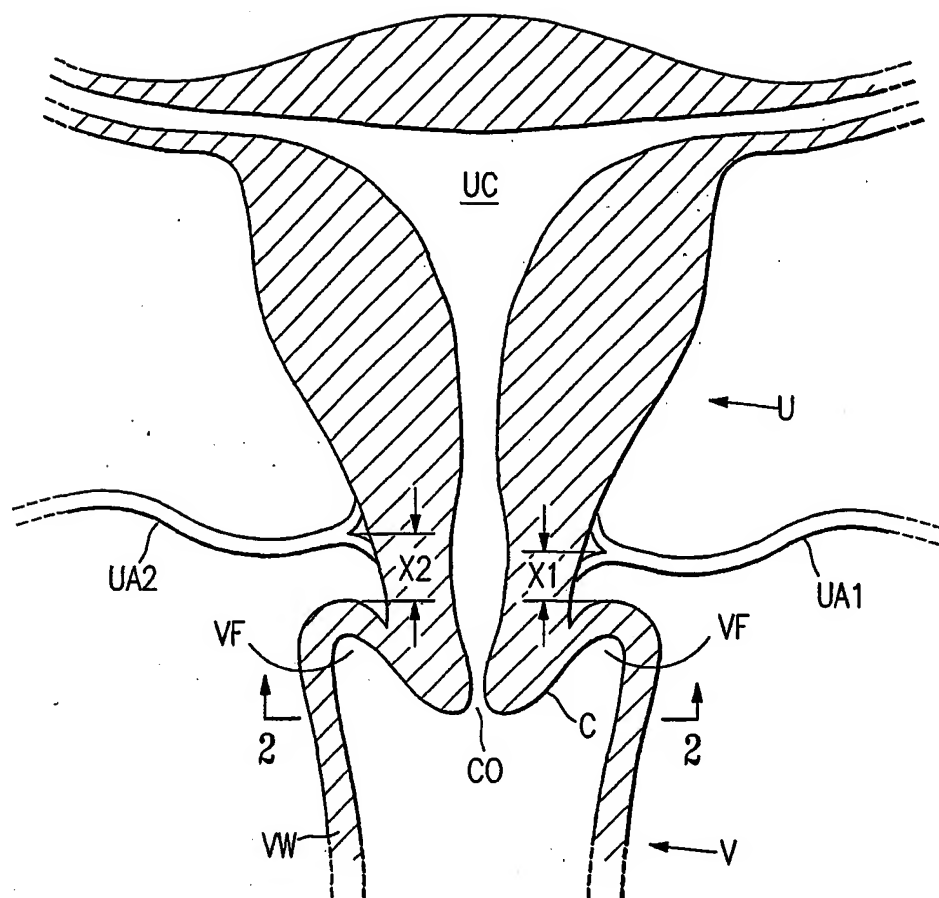


FIG. 1

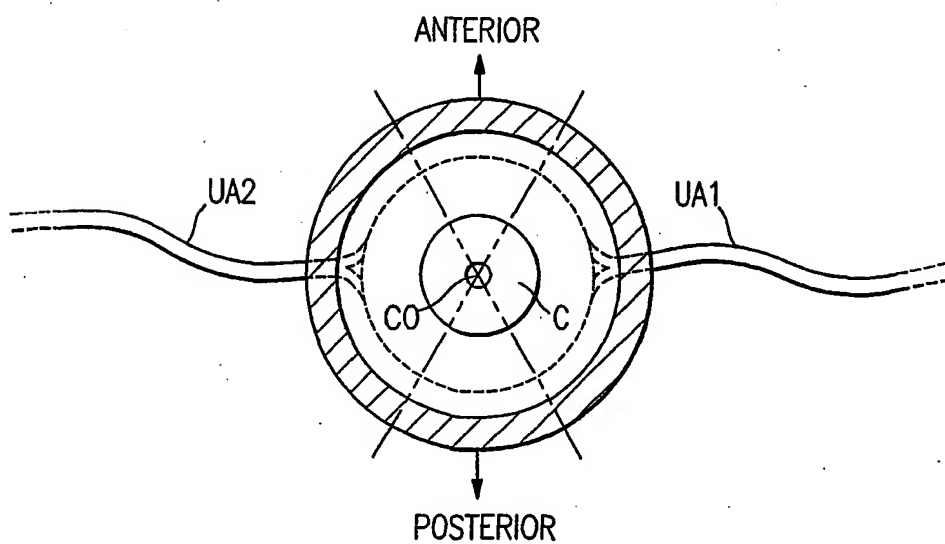


FIG. 2